2011-12 Gates: Pre-College Math Grant CLARK_APP8032

Status: Submitted

Applicant Information

Organization: Clark College
Consortium: No

Contact:

Name: Cynthia Foreman
Title: Associate Director of eLearning
Address: 1933 Fort Vancouver Way
Vancouver, WA 98663
Phone: 360-992-2248
Fax: 360-992-2895
Email: cforeman@clark.edu

Secondary Contact:

Name: Bill Monroe
Title: Math Instructor
Phone: 360-992-2204
Email: bmonroe@clark.edu

Contents

Section 1

Project Participation

1A. Provide an updated list of the college faculty/staff who are *core team members* involved in leading and/or implementing the project.

Bill Monroe, Professor, Mathematics bmonroe@clark.edu
Jody McQuillan, Professor, ABE, jmcquillan@clark.edu
Luanne Lundberg, Professor, DevEd, llundberg@clark.edu
Gary Phillips, Professor, DevEd, gphillips@clark.edu
Bob Lynn, Faculty, Mathematics and DevEd, rlynn@clark.edu
Carren Walker, Faculty, Mathematics, cwalker@clark.edu
Cynthia Foreman, Assistant Director of eLearning, cforeman@clark.edu
Gail Liberman, Professor Emeritus, Adjunct Faculty, gliberman@clark.edu
Teri Miller, Faculty, Mathematics, tmiller@clark.edu
Brian James, Faculty, Mathematics, bjames@clark.edu
Diana Coatney, Faculty, Mathematics, dcoatney@clark.edu
Joan Zoellner, Faculty, Mathematics, jzoellner@clark.edu
Erin Schoenlein, Faculty, Mathematics, eschoenlein@clark.edu
Isaac Erskine, Faculty, Mathematics, ieskine@clark.edu
Ray Korpi, Dean of Basic Education, English, Communications, and Humanities, rkorpi@clark.edu
Peter Williams, Dean of STEM, pswilliams@clark.edu

1B. Estimate the approximate percentage of math department members (full-time and part-time/adjunct *separately*) who have participated in some kind of project-related activity (campus events, use of CATs, classroom exchanges, etc.).

The Clark College RPM project involves faculty members from three different departments that teach pre-college mathematics. Located in three different sites these three departments are the Math, Developmental Education Department (DVED), and Adult Basic Education (ABE). The Math Department is part of the Science, Technology, Engineering and Mathematics (STEM) Unit while DVED and ABE are part of the Basic Education, English, Communication and Health (BEECH) unit.

Number of math faculty participating in project related activities:
Math: 53% or 40 active participants out of 75 faculty members.
DVED: 85% or 6 active participants out of 7 faculty members.

ABE: 93% or 14 active participants out of 15 faculty members.
Total faculty: 62% or 60 participants out of 97 total faculty members in these three departments.

Section 2

Progress Report on Project Activities and Challenges

2A. One of our core project themes is to make learning and teaching "visible" through incorporating the common practices of 1) *classroom observations/exchanges* and 2) *classroom assessments* into 3) *faculty inquiry* efforts at each of the project colleges. Describe to what extent and in what ways you have incorporated these three areas of practice into your project over the past year, including who in the department has been involved with each area.

The core project themes were the main focus of activities at Clark College this year. During fall quarter: i. Presentations where held at the beginning and end of fall quarter to build awareness and recruit faculty to participate in Faculty Inquiry Groups (FIGS), ii. The team presented 3 CAT Workshops at the main campus and the Town Plaza Center with a total of 41 instructors attending, iii. The core team formed a FIG and developed FIG meeting procedures, a protocol for classroom observations, tested several CATs and studied one complex lesson. These experiences in the fall provided an opportunity to learn about the dynamics of a meeting as a FIG, participating in a classroom observation, and developing and testing a CAT. These activities were critical preparation for Winter Quarter activities when several core members would lead their own FIG comprised of new teachers.

In the Winter quarter: i. additional CAT workshops were held, ii. 4 FIGs were established, iii. Each of these FIGs met at least 2 times during the quarter, iv. FIG group members were encouraged to participate in classroom observations as well as developing and implementing CAT's. This work continued in Spring quarter, with 6 FIGs and continues into the summer with 2 FIGs.

Below is an example of an activity report for one of the FIGs which had 7 members.
Winter quarter: 2 FIG meetings February 4th and 18th for 1.5 hours each; 13 classroom observations; 37 CAT's used by participants.
Spring quarter: 2 FIG meetings April 15th and May 6th for 1.5 hours each; 12 classroom observations; 16 CAT's used by participants.

Summary of lessons learned from classroom observation/exchanges.
•Varying pacing of instruction within a classroom and between classrooms
•Variation in formative assessments from CATs training (i.e., Muddiest Point, Memory Matrix, & One-Minute Paper) to blind hand raising, to Concept Test Questions
•A wide range of teaching methods: mini-lectures, using the white board, using websites, PowerPoint, discussing homework problems, presenting material in the lesson using example problems, responding to questions, students participating in active learning- working in

groups/moving around classroom measuring/students adding to data on board or in a chart
•Changing activities every 20 min to keep class moving and increase attention span
•Discovering similarities between material covered in ABE math courses, DVED math courses, and Math 030
•Classroom management: how instructor handled rude or disruptive students
•Instructors planning more interactive lessons for the visiting teacher
•Application of a variety of teaching skills and methods

Summary of lessons learned concerning the use of CATs.
•Use of CAT every day to get instant feedback (close eyes, raise hand if got correct)
•Concept Test Questions used to see if students are understanding material, sometimes take more time to discuss than originally planned
•Making adjustments to teaching method and content based on feedback from the CAT
•Illustrating the need to identify different way to teach certain concepts
•Determining the optimal length of time needed to complete a CAT based on discussion with students and analysis of data from Factor Matrix CAT. Data used: how many problems students got correct, time spent, calculated mean and median.

One of the most exciting achievements of the FIG activity this year was to see interdepartmental classroom observations/exchanges taking place across the three instructional units: ABE, DVED, and Math. This builds a greater understanding of all the levels of pre-college math that a Clark College student may encounter and will helps faculty identify common core concepts being taught as well as determine those concepts that students struggle with at all levels. Greater understanding of the various levels has lead to some very exciting dialogue and collaboration among faculty members.

2B. Describe other specific project-related activities you and your team have done since last summer; by the end of year 2 of the grant (August 31, 2011), what will your team have accomplished toward the overall stated goals of your project?

Project related activities and events since last summer:
•September 2010 – hosted an informational table at the Fall Orientation fair for faculty and staff
•Presentations at Math department meetings about the grant inviting faculty to participate in grant activities
•Informational sessions with pizza for ABE, DVED, and Math faculty during finals week
•Host visits by state level RPM team members Bill Moore and Mickey Davis
•Complex task implementation in class by project team members
•Student survey developed and piloted in core team members classes with assistance of the Office of Planning and Effectiveness
•Core team members attended various statewide meetings, training events, and national

conferences
•Core team members made presentations about the grant to the Board of Trustees and at SW Washington Experts conference at Skamania
•Explore options for introducing an experimental a FAST-TRACK alternative
•Continue to explore ways to collaborate with ESD112.
•Continue FIG participation, classroom observations and use of CATs in the classroom.
•Developing concept tests that will be made available to faculty in the fall.
•Worked with the Office of Planning and Effectiveness on various measures of success rates
Original Activities proposed in Phase I and progress made in Phase II:
1st: create a comprehensive understanding of what is being taught and how it should be taught.
Classroom observations and faculty collaboration in FIGs lead to significant progress on this project goal. The Student Survey piloted this year allowed the team to gain insights into student attributes that will assist faculty in determining how pre-college math should be taught in a way that could lead to higher success rates.
2nd: determine a set of SLOs and associated assessments for each course within the pre-college math program.
In Phase I the core team identified a comprehensive set of Student Learning Outcomes that run through all levels of pre-college math. During Phase II the team developed a number of CATs and implemented those in pre-college math courses across all three departments. Concept tests developed in Phase II will be delivered in pre-college math courses taught by RPM instructors in year 3 of the grant.
3rd: develop Faculty Inquiry Groups (FIGs) to encourage instructional approaches designed to increase student engagement and deepen mathematical understanding.
This goal was met in Phase II of the grant. Two FIGs continue to be active this summer. Meetings are held where faculty can collaborate on ways to increase student engagement and share best practices as well as obstacles that students face. FIG activity will continue and expand to more teachers during Year 3 of the grant.
4th: identify a set of student attributes that will be part of the expectations teachers convey to their students throughout their participation in the program.
Significant progress has been made to identify a set of student attributes for student success. A Student Attributes survey was delivered to a number of pre-college math students. A comprehensive report was developed and based on the report plans are being made this summer to revise some of the questions and prepare the survey for distribution to a much larger number of pre-college math courses in the 2011-2012 academic year.
5th: create assessments and identify deficiencies in how we assist students in achieving success.
Four workshops were held on the topic of classroom assessment techniques. Faculty worked collaboratively to develop CATs that were then shared within FIGs and implemented in pre-college math courses across all three departments. The major focus of the classroom

observations is to view how well students are engaged during class. The observations and the sharing that takes place among FIG members afterwards is helping to identify deficiencies and develop creative ways to help students become more successful.

2C. What have been the key challenges/obstacles you have encountered so far in organizing your team and the work of your project, and how are you addressing them? In particular, what challenges and issues have you encountered in considering and implementing the core practices in the context of the goals of your local project work?

One of the biggest challenges facing the pre-college math team is finding time to do the extra work associated with the grant. Enrollment at Clark College has been extremely high and every faculty member is carrying a full class-load. Coordinating project meetings for faculty who have a full teaching schedule was a challenge. Pre-college math at Clark College spans three departments under two different Deans and three different locations: Town Plaza, Columbia Technical Center & Main Campus. As more faculty became involved in the project the group encountered even more challenges in coordinating an even larger group of busy faculty. There are numerous challenges in dealing with the larger group: maintaining FIG participation, communicating meeting times & locations, documenting group activity, completing necessary paperwork to compensate faculty for participation in grant activities.

To address the organizational challenges clear procedures were developed for FIG meetings and classroom observations. We are still standardizing the reporting process to ensure consistency in the reporting process. We feel our best strategy for moving forward is to carefully select future FIG team leaders who will keep the team members organized and motivated. Strong, committed FIG leadership should help us with the additional challenges of tracking and summarizing FIG activities and creating a more successful way to share the concepts tests, CATs, and other best practices that are developed within on small group across the three departments. We will be placing more emphasis on maintaining the Clark College RPM wiki as a location to report out FIG activities, CATs, and concept tests. We have also identified a clerical assistant who will be working closely with the administrative lead on the project to handle travel, purchasing, and payroll issues in a timely manner.

The RPM team is very enthusiastic and as a result we've taken on a large number of projects which include:

•starting and maintaining several FIGs; creating protocols and establishing schedules for classroom exchanges

•introducing and producing several CATs; creating and piloting student attribute/behavior survey

•writing short concept tests for all pre-college levels to be used as imbedded assessments for a set of classes in 2011-12

•establishing and maintaining a WIKI site to store and share materials developed through the

grant with faculty
•making several presentations to the campus
•exploring opportunities for establishing an experimental FAST-TRACK option
•participating in regional workshops about best practices in teaching
•working to find outside presenters who could come to Clark in the future

Keeping the RPM team focused on a common task has been challenging. The core team has always been interested in embracing new ideas for improving the practice of teaching and developing additional initiatives. However, by documenting our core goals and making them the key topics at RPM meetings it was possible to maintain our focus without drifting from the mission.

Another challenge that we faced this year concerns the sharing of information and training gained by team members who travel to various conferences and training events. We did not implement a protocol for this sharing and as a result these benefits were not shared as effectively as they could have been. Next year we will be more intentional about scheduling set times for faculty to share their experiences, training, and knowledge with team members on campus or through Elluminate web conferencing.

2D. What else can the RPM project leadership do to help you address these challenges?

We should make use of the resource personnel involved in RPM to make a presentation at Clark College. This would enhance our ability and understanding of the effective use of CATs as a form of effective support of student learning. Currently we have many teachers using CATs and we have been holding follow up discussions in FIGs about the effectiveness of CATS. We could benefit from having a deeper discussion with experts through a presentation or a workshop. This presentation or workshop could be opened up to all FIG members.

The RPM leadership could assist with providing a list of outside presenters and/or speakers that are known to be excellent at giving professional development workshops. Although, we receive many invitations to such workshops, we are not aware of the quality. Perhaps we could have a “presenter blog” where educators could discuss or rave about a particular presentation. Admittedly, this is a tall order but would be very valuable if such a venue is of interest to other schools.

The RPM leadership could provide an avenue to share best practices and success stories across the 7 colleges involved in the RPM project, perhaps through bi-monthly webinars. These webinars could be recorded using Tegrity lecture capture system or held live in Elluminate with participants from across the state as well as state level leadership. This type of webinar or virtual statewide meeting would provide an opportunity for the teams to learn

from one another and not duplicate efforts and/or mistakes.

Encourage and increase the use of the statewide RPM wiki. The statewide wiki provides useful information but has not been used much for sharing between the participating schools. We've been so focused on meeting our demanding schedule that we've tended to not reach out to other schools through that medium. If there were some planned events as mentioned in the previous paragraph there would be more collaboration through the wiki.

Section 3

Data and Evidence

3A. With respect to student achievement or perspectives, what evidence have you gathered or compiled so far? How have you used (or how do you plan to use) that evidence to inform the work of your project?

Pilot Student Survey: Pre-survey delivered to 149 students and post-surveys delivered to 153 students within that group there was a paired sample of 98 students. Within the 98 paired responses we saw statistically significant increase in the following math attitude statements:

•I like math
•I am good at math
•Math is fun
•I learn new concepts after only one explanation from the instructor

Note: There were statistically significant decreases in the following math behavior statements: (misalignment of intentions and reality)

•I attend class regularly
•I complete homework or study every day (including weekends)

Recommendations on how to improve the Survey when delivered next year:

•Make all statements positive
•Minimum of three instructors for each course for course comparisons to be meaningful
•Use labels for all points on the scale, not just the endpoints

Success Rate Discussion:Clark College is looking at success rates for pre-college math students over a 2-year window and a 3-year window. We have determined 2 measures of success: a) becoming eligible to take college level math; and b) successfully completing college level math (C or better). We've identified academic intent, the academic year when the student first takes a pre-algebra course at Clark and the level the student begins their pre-college algebra. We have created a data base that can calculate success rates based on academic intent, year of entry, level of entry, type of success and length of time (2-year vs. 3 year window) to success.

The level assignments are complex because Clark offers two sequences for pre-college algebra. One is a 2-term sequence of Beginning Algebra followed by Intermediate Algebra. The other is a 3-term sequence of Algebra I, Algebra II and Algebra III. The levels that Clark uses appear in the ascending order Basic Math I, Basic Math II, Pre-algebra, Beginning Algebra/Algebra I, Algebra II, and Intermediate Algebra/Algebra III. Please note that there is a level beneath Basic Math I which is ABE IV but we are having difficulty getting pass rates.

Our intention is to use these historical rates as a basis of comparison for the years that follow.

If our program is effective we will see increased success rates at all levels. If this is not the case we plan to target interventions at particular levels that are not showing improved rates of success.

We have learned that the success rate for completing college level math in a two-year window increases significantly if the student is initially placed at a higher level. Students who begin at the lowest level and are seeking a degree must take 6-7 pre-college math classes and have very low success rates (1%-5% depending on entry year). This contrasts with those beginning at the highest entry level and have the highest rates of success (48% - 55% depending on entry year). This could start a very useful discussion with the faculty and administration about our curriculum.

3B. With respect to faculty perspectives and behaviors related to project goals, what evidence have you gathered or compiled to date? How have you used (or how do you plan to use) that evidence to inform the work of your project?

The combination of classroom exchanges and FIG meeting participation has empowered faculty to implement new ideas. This has provided more opportunities for open dialogue and collaboration among faculty members in all three departments. Specifically the classroom exchanges have been a very meaningful experience for the faculty, allowing them to sit and observe how the students are absorbing information presented in the class. Additionally the FIG meetings give faculty a chance to share in collegial environment, their challenges, and successes. After implementing a specific CAT the FIG groups have been able to share their results and discuss additional best practices to bring about greater student engagement and success.

It is not possible to gather quantitative data on changes in perspective and behavior. We can however, report the number of faculty who are attending FIG meetings, the number of classroom observations that have taken place, and the number of CAT's that have been implemented in various courses. Moreover, the observations within the departments can be presented as qualitative data: increased dialogue between faculty members, and increased faculty collaboration to develop more effective teaching methods.

The above mentioned openness to sharing ideas, collaboration, and willingness to have a colleague observing their class, is exactly what we hoped to see happening in this project. We are confident that a greater understanding of how and why the students struggle in pre-college math, and a willingness to adjust the way concepts are being taught, will result in increased student success. Therefore, we strongly believe that FIG process should be continued and sustained in the future.

The Math Department will begin a new initiative in 2011-2012 to provide a collaborative

opportunity to all faculty with the RPM project. It will focus on the need to make instruction more consistent in the pre-college math courses. The full-time instructors will meet with pre-college math instructors at the beginning of the year to discuss protocols in teaching and assessing students learning. Impetus for this new initiative came, in part, from FIG activities that put special attention on student success in pre-college math. The concerns about consistency was often mentioned by adjuncts at the FIG meetings and these concerns were forwarded to leadership in the Math Department which led to this growing interest in finding ways to make students more successful in pre-college math. Already, a number of RPM team members have volunteered to assist in this process. This new initiative will create opportunities to collaborate with the Math Department as a whole.

3C. What additional support do you need from the RPM leadership and evaluation team to help you gather and/or use evidence to assess your project-related work?

SAI state level analysis would be helpful. We have had good support from our Clark College Office of Planning and Effectiveness so far and we want to make sure that the data we are gathering and analyzing is consistent with the needs of the statewide project. Data analysis is time consuming and we don't want to be duplicating efforts if there are discrepancies between the data we are working with locally and the data being analyzed on a state level.

We are moving forward with a Student Survey about Math Attributes here at Clark College. If there are multiple campuses delivering similar surveys it may be more effective to standardize the survey so that state level analysis can be done. Opening up a student survey across 7 college campuses would create a much larger population to draw on. We could even have a subset of statewide or system-wide questions embedded in the student surveys conducted on all campuses. This would provide more powerful data regarding the overall impact of the three year grant.

It would be helpful to see what the participating colleges are doing in terms of gathering evidence of changes in teacher perspectives and behaviors. We tend to become more myopic and work within our college in order to get surveys done under a schedule that is somewhat tight due to the presence of our regular professional obligations. The presence of some kind of shared event, via Elluminate, could provide a venue for discussion and sharing of ideas during some key points during the year.

Section 4

Budget Narrative

4A. Description of how funds will be used for Project Development Salaries, Wages, and Benefits.

Project Development Salary and Wages	$32,349.00	**Project Development Employee Benefits**	$4,426.00

1033 hours of faculty participation in grant related activities at the Other Assignment rate of $31.30 an hour. Hours are for Adjunct faculty participation in grant related activities during regular work day and fulltime faculty participation outside of regular work day. We anticipate beginning the year with at least 30 faculty actively participating in grant related activities including FIG meetings, classroom exchanges, and developing CAT's. We also have core team members who are adjunct faculty that will continue to have 5 to 15 hours of participation each month throughout the year.

4B. Description of how funds will be used for Project Development Goods and Services.

Project Development Goods and Services	$1,200.00

Estimate of $200 for various project related expenses such as photo-copying, printing, binding. Purchase of assessment tools, books, and other resources.
Estimate of $600 for conference registration and professional development.

4C. Description of how funds will be used for Project Development Building Rental and Utilizations.

Project Development Building Rental & Utilizations	$0.00

4D. Description of how funds will be used for Project Development Travel.

Project Development Travel	$2,800.00

Team members will be traveling to various training events and making visits to other colleges within the state. We are also budgeting for possible out of state travel this year. We anticipate around $2200 in actual travel including mileage reimbursement, per diem, and hotel costs. We anticipate another $600 in food expenses to be consumed during workshops, work sessions, and training events.

4E. Description of how funds will be used for Project Development Contracts.

Project Development Contracts	$4,500.00

Plans are being made to bring two well known speakers to Clark College this academic year. We are budgeting $2500 for each of these events. This amount will cover a $2000 speaking fee and allow for up to $500 of travel expenses. Our first presenter will be Ruth Parker. This event will be held in September. An additional presentation would be scheduled for Winter Quarter.

4F. Description of how funds will be used for Instruction Salaries, Wages, and Benefits.

Instruction Salary and Wages	$10,000.00	**Instruction Employee Benefits**	$1,300.00

We will be budgeting $10,000 to provide funds to pay for an Instructor to teach one 5 credit course during Fall, Winter, and Spring Quarters so that Bill Monroe will have a reduced teaching load and be able to serve as the project lead. The cost of these 15 credits was $9,111.00 during the 2010-2011 Academic Year. We are allowing for approximately $900 in additional funding that could be used to cover substitute instructors when our math grant team members attend statewide meetings, conferences, or other training events.

4G. Description of how funds will be used for Instruction Goods and Services.

Instruction Goods and Services	$0.00

4H. Description of how funds will be used for Instruction Building Rental and Utilizations.

Instruction Building Rental & Utilizations	$0.00

4I. Description of how funds will be used for Instruction Travel.

Instruction Travel	$0.00

4J. Description of how funds will be used for Instruction Contracts.

Instruction Contracts	$0.00

4K. Description of how funds will be used for Administration Salaries, Wages, and Benefits.

Administration Salary and Wages	$2,000.00	**Administration Employee Benefits**	$325.00

We anticipate using 5 hours of Budgeting & Invoicing time from Account Specialist this year for a total of 50 hours at a rate of $21.95.
We anticipate using approximately 5 hours each month for clerical support in preparation of official documentation such as personnel action forms, travel requests, and other types of reports.

4L. Description of how funds will be used for Administration Goods and Services.

Administration Goods and Services	$0.00

4M. Description of how funds will be used for Administration Building Rental and Utilizations.

Administration Building Rental & Utilizations	$0.00

4N. Description of how funds will be used for Administration Travel.

Administration Travel	$0.00

4O. Description of how funds will be used for Administration Contracts.

Administration Contracts	$0.00

Budget

Organization: Clark College

Activity	Salary and Wages	Employee Benefits	Goods and Services	Building Rental & Utilizations	Travel	Contracts	Total
Project Development	$32,349.00	$4,426.00	$1,200.00	$0.00	$2,800.00	$4,500.00	$45,275.00
Instruction	$10,000.00	$1,300.00	$0.00	$0.00	$0.00	$0.00	$11,300.00
Administration	$2,000.00	$325.00	$0.00	$0.00	$0.00	$0.00	$2,325.00
Total	$44,349.00	$6,051.00	$1,200.00	$0.00	$2,800.00	$4,500.00	$58,900.00